



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/077,775

02/20/2002

Shigeto Taga

36856.615

3648

7590

04/01/2004

Keating & Bennett LLP  
10400 Eaton Place, Suite 312  
Fairfax, VA 22030

EXAMINER

ADDISON, KAREN B

ART UNIT

PAPER NUMBER

2834

DATE MAILED: 04/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/077,775

Applicant(s)

TAGA, SHIGETO

Examiner

Karen B Addison

Art Unit

2834

pw

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 29 December 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### Claim Rejections - 35 USC 9 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-7, 9-16, and 18-19 are rejected under 35 U.S.C. 102(e) as being anticipated by Nishizawa (6469593).

Nishizawa discloses in fig. 1A-1 B and 3-15 a surface acoustic wave device comprising: a package (2) made of alumina ceramic and a plurality of metal bumps (7) made of metal disposed near any for corners of the bonding surface of the substrate (1).

Wherein, the rectangular shape piezoelectric substrate (1) has different linear thermal expansion coefficients located in two different directions of the bonding surface of the piezoelectric substrate (col .1-10)., on which the plurality of metal bumps are provided.

Wherein, maximum distance (LZ) between the metal bumps arranged in one of the two different directions (in which the piezoelectric substrate and the package have a greater

Art Unit: 2834

difference between the linear thermal expansion coefficients) is less than the maximum distance (LX) between the metal bumps(electrode pads p50-p54) arrange in the other direction (in which the piezoelectric substrate and the package have a smaller difference between the linear thermal expansion coefficients) see fig.9 Nishizawa also discloses in fig.7 at least three of the metal bumps dispose near any for corners of the bonding surface and at least one of the metal bumps disposed in the approximate center of the bonding surface of the piezoelectric substrate.

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 8 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishizawa in view of Furukawa (6262513).

Nishizawa substantially discloses the claim invention. However, Nishizawa does not disclose metal bumps made of solder.

Furukawa teaches surface acoustic wave device in fig.33 comprising: a surface acoustic device (3), a transducer (4) and a plurality of conductive bumps (6) made of solder for the purpose of electrically connecting the transducer to the circuit board.

It would have been obvious to one having ordinary skill in the art at the time the invention was made modify the SAW device of Nishizawa with the teaching of Furukawa for the purpose of providing an electronic device, which can work stably without the

adverse effect of the ambient noise even in high frequency region.

***Response to Arguments***

3. Applicant's arguments filed 12/29/03 have been fully considered but they are not persuasive.

4. Applicant's argument that the maximum distance between the metal bumps arranged in a direction in which the piezoelectric substrate and the package have a greater difference between the linear thermal expansion coefficients is less than the maximum distance between the metal bumps arranged in another direction in which the piezoelectric substrate and the package have a smaller difference between the linear thermal expansion coefficients is noted.

5. However, Nishisawa drawings shows in fig.9 the maximum distance between the metal bumps arranged in a direction in which the piezoelectric substrate and the package have a greater difference between the linear thermal expansion coefficients is less than the maximum distance between the metal bumps(electrode pads p50-p54) arranged in another direction in which the piezoelectric substrate and the package have a smaller difference between the linear thermal expansion coefficients.

6. Applicants argument that Furukawa fails to teach the maximum distance between the metal bumps arranged in a direction in which the piezoelectric substrate and the package have a greater difference between the linear thermal expansion coefficients is less than the maximum distance between the metal bumps arranged in another direction in which the piezoelectric substrate and the package have a smaller difference between the linear thermal expansion coefficients is noted.

However, Furukawa reference is present to teach the bump can be made of solder or metal (Au) see fig. 33 as noted above.

7. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

#### ***Conclusion***

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.


Art Unit: 2834

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karen B Addison whose telephone number is 571-272-2017. The examiner can normally be reached on 8:00 to 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez can be reached on 703-308-1317. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

KBA  
3/18/04

  
THOMAS M. DOUGHERTY  
PRIMARY EXAMINER  
GROUP 2100